



# PRODUCT CATALOGUE

## OUR COMPANY

TRANSCERAM was founded in 1979 as an distributor for ceramic components. In the meantime TRANSCERAM is a modern technology company, manufacturing components in silicon carbide and tungsten carbide for the chemical industry, food processing and mechanical engineering. By developing our materials, products and processes in close cooperation with our customers, we are now a leader for precision components in hard materials. Our qualified employees, engineers and specialists are offering technical expertise which can be found in specific solutions for our customers.

In October 1998 we were one of the first companies in Germany with an EMAS certified environmental management.



## COMPANY PHILOSOPHY

The management has together with employees built up a guideline which determined the values, principles and objectives of the common work. TRANSCERAM stands for high product quality and outstanding service. Our production processes are optimized for needing as less as possible of energies. Engineers agree the manufacturing process with suppliers and customers in terms of quality and environmental standards and resources. By complying with the measures of occupational safety workplace safety is ensured.

The compliance culture is at TRANSCERAM a rule-abiding and law-abiding behavior. All employees have taken the code of conduct to the attention and comply with.

A respectful cooperation, within our company, with our suppliers and customers are part of our corporate culture. To form the economic and social living conditions responsibly, has a successful family-owned German company tradition.

Our growth and the overall success of our company is ensured by extensive investments and the further education of our pro-fessional knowledgeable staff. Together with our partners we educate our future employees.



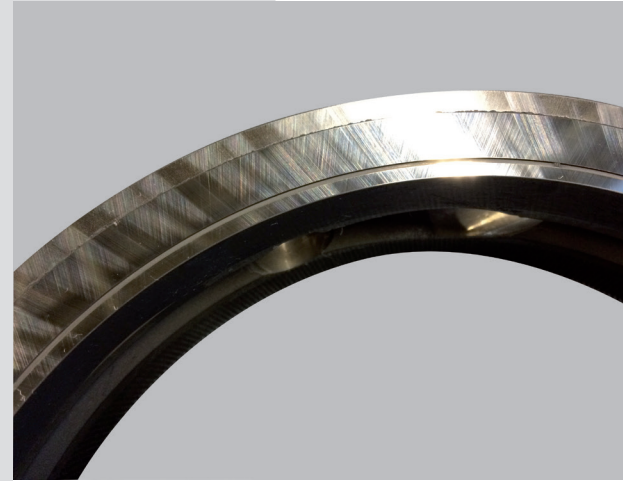
## OUR COMPETENCE

With our experience of many years as an OEM and internationally operating company, we are constantly meeting the increasing demands on our materials. These are manufactured with precision and efficiency.

With know-how and innovative ideas we solve problems, be it chemical, thermal, electrical, mechanical or tribological.



Valve components



Bearing rotating systems

The shortening of live-cycles has resulted in increased market dynamics in all manufacturing companies.

The diversity by new products creates a technological complexity which must be handled.

Our team of proven German management with product specialists selects the proven components, regarding materials and design. We are using state-of-the-art manufacturing, expertise, proven methods with quality standards and corresponding performance.

Flexibility on our side allows you flexible and versatile planning. Your resources are conserved by outsourcing certain processes, not belonging to your portfolio.

Fast reactions in the cooperation with our customers from different branches of industry and our team with our know-how enables a tailor-made implementation of the processes, whether for functional production parts or fully automatic systems in the areas of soldering and coating technologies.

Our material portfolio offers a unique variety from a single source. In conjunction with our flexible production unit and organizational structure, we can develop customized solutions individually and implement in a timely manner. Our customers benefit from our strengths, a highly qualified staff and engineering team, state-of-the-art production facilities, the use of quality materials and flexible delivery times.

We rely on a partnership, successful and long-term cooperation.



Valve part



Sealings



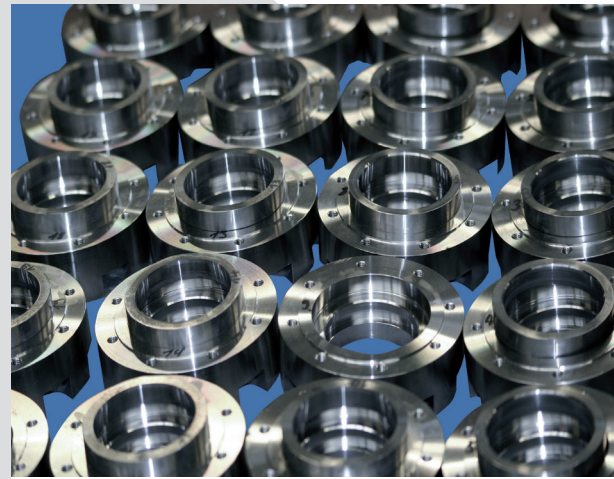
Pistons



## OUR PRODUCTS

You are looking for a qualified supplier of carbide or technical ceramic components. With our long experience in development and production for a lot of applications, we have become a reliable partner in the manufacture of hard material parts according to your specific requirements.

Whether grinding, honing, drilling, wire-cutting or polishing, we realize the precision you require.



Pump part

We are not only producing components, we also supply composite elements, which are for example carbide with a carrier material of your choice. Joining technologies such as shrinking-fitting, soldering, gluing or press-fitting, we master - whether in individual or series production.

Our core business includes pump components. Bearings, shaft sleeves, plain bearings for magnetic couplings, thrust bearings, but also seal-rings, pistons and valve components are our core competence.

Our carbide with nickel binder (TC-6N) and silicon carbide (SSiC) are not only chemically resistant, but also offer process reliability in food applications.

We manufacture seal-rings up to a max. diameter of 520 mm.

Carbide is a material with universal uses in toolmaking because of the high number of grades with different physical properties. Quality tungsten-carbides are the basis for competitiveness of forming-tools (deep drawing), punching or cutting.

We supply parts against drawings made of carbide, silicon carbide, silicon nitride, zirconia and also alumina. Our air-conditioned manufacturing with constant 20 ° C guarantees repeatable, measured and tested tolerances in micrometers (0.001 mm).

Alumina (Al<sub>2</sub>O<sub>3</sub>) and silicon-nitride (Si<sub>3</sub>N<sub>4</sub>) as electrical insulators are completed by thermal insulators made of zirconia (ZrO<sub>2</sub>).



Hastalloy-wings with shrink-fitted TC-bearings



Lapping



Bearing of a pump

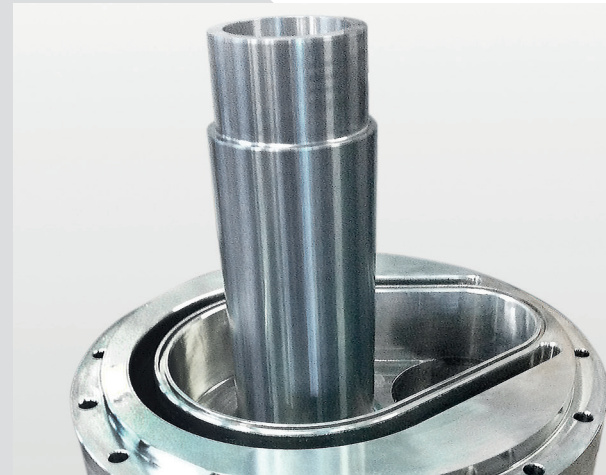
## OUR PRODUCTS

Our engineering stands for sustainable and economical optimization of your production processes.  
Benefit from our work, engineering, reengineering and business management.

TRANSCERAM the partner for your products. **Made in Germany.**



TC-shaft of an high-pressure rotating sieve



Pump impeller

## TECHNOLOGY

- Machining techniques  
Round and flat grinding, honing (cross grinding), jig grinding, Drilling, turning, round and flat lapping, polishing in the  $\mu\text{m}$  range.
- Joining techniques  
Shrink-fitting - Soldering - Gluing – Press-fitting  
Components made of carbide or technical ceramics as a composite element including steel, stainless steel, titanium and plastic.
- Coatings  
Tungsten-carbide (WC), chromium carbide ( $\text{Cr}_3\text{C}_2$ ), chromium oxide (CrO), Alumina ( $\text{Al}_2\text{O}_3$ ) but also Stellite and special coatings.  
Manufacture of coated bearings, shaft sleeves, pistons, seal rings and valve components.
- Service and maintenance

## PRODUCTS

- Bearings  
Bushings, shaft sleeves, magnetic bearings, thrust bearing, washers, complete bearings, shafts
- Pump- and valve components  
Homogenizing valves, plungers, tappets, valve seats, precision balls
- Mechanical seals  
Seal-rings and inserts for shrink-fitting (for steel-housings)
- Rotating systems  
High-pressure rotary joints, rotating mixers, bearings for permanent magnet systems
- Measurement  
Special gauges (with calibration service)



Sealring



Ceramic piston shrink-fitted in steel-body



Carbide-shaft shrink-fitted for 120°C application



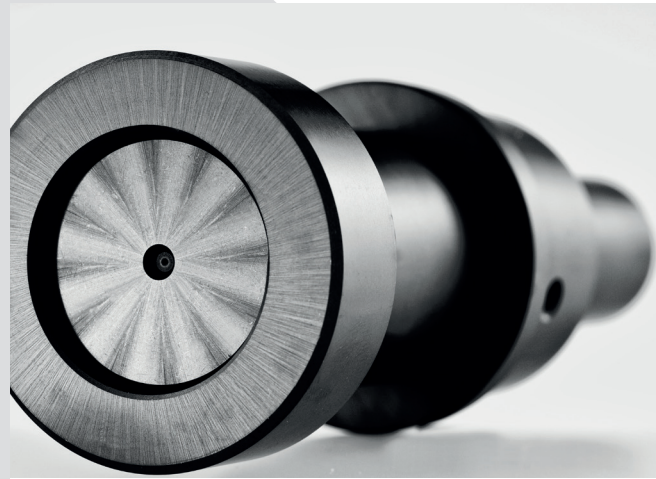
# MATERIALS

Our task in the field of manufacturing and materials technology is the development and optimization of this process chain, including the production-related component properties. In cooperation with our customers, we continue to develop and improve exactly these manufacturing processes.

For our customers and their different requirements, we work with 40 different carbide grades and more than 10 different ceramic materials.



Honing of a bushing



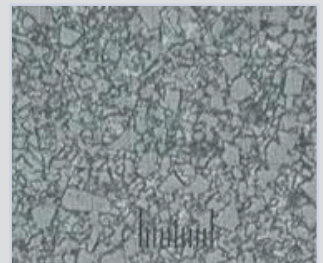
Shaft with bearing

## MATERIAL

### TRANSCERAM-CODE

### PROPERTY / UNIT

		▶ Alumina Oxide ▼ $\text{Al}_2\text{O}_3$ (99,7%)	▶ Silicon Carbide ▼ SiC	▶ Silicon Nitride ▼ $\text{Si}_3\text{N}_4$	▶ Zirkonia Oxide ▼ $\text{ZrO}_2$	▶ Tungsten Carbide Ni-Binder ▼ TC-6N
Density	g/cm <sup>3</sup>	▶ 3,9	▶ 3,1	▶ 3,2	▶ 6,0	▶ 14,9
Porosity	%	▶ 0,0	▶ 0,0	▶ 0,0	▶ 0,0	▶ 0,0
Hartness (Vickers)	GPa	▶ 22	▶ 26	▶ 16	▶ 13	▶ 17
Compressive strength	MPa	▶ 2.800	▶ 2.400	▶ 3.000	▶ 2.200	▶ 4.200
Flexural strength	MPa	▶ 340	▶ 450	▶ 750	▶ 810	▶ 1.800
Modulus of elasticity	GPa	▶ 380	▶ 420	▶ 300	▶ 200	▶ 610
Thermal conductivity (20 - 100° C)	Wm <sup>-1</sup> K <sup>-1</sup>	▶ 25	▶ 100	▶ 35	▶ 2	▶ 50
Thermal expansion (20 - 100° C)	10 <sup>-6</sup> K <sup>-1</sup>	▶ 8,1	▶ 4,1	▶ 3,2	▶ 9,1	▶ 5,2
Thermal shock- parameter	K	▶ 200	▶ 320	▶ 450	▶ 300	▶ 400
Max. operating temperature						
Air	°C	▶ 1.700	▶ 1.450	▶ 1.400	▶ 1.200	▶ 900
Shielding gas	°C	▶ 1.700	▶ 1.650	▶ 1.450	▶ 1.400	▶ 1.000
Electrcal resistance (20° C)	Ω cm	▶ 10 <sup>14</sup>	▶ 10 <sup>4</sup>	▶ 10 <sup>11</sup>	▶ 10 <sup>9</sup>	▶ 10 <sup>-2</sup>



Grain-structure  
tungsten-carbide



TC-EDM-blocks



Tungsten-carbide  
preforms

# OUR INDUSTRIAL EXPERIENCE

TRANSCERAM GmbH in Laudenbach has since 1979 international industrial experience in the production of silicon carbide and carbide components for the chemical industry, food processing and mechanical engineering.

Our profound technological knowledge, which is highly valued in our industry, shows our process understanding in realization of customer requirements.



Valve with three ceramic-seats



Pump impeller

## OUR SERVICE

The revision of rotating systems starts with the engineering. Optimized materials for the required parameters will be chosen by our engineering. Components will be modified, if necessary, with state of art technology, to get the best possible productivity of your products. For emergency-help we have installed a quick-supply with short delivery.

For the delivered components we offer the following services:

- Revision of rotating units, incl. spares
- Repair of bearings in hard materials
- Grinding, lapping and polishing of sealrings
- Revision of coatings
- Revision of homogenizer valves

We care for our manufactured components, even after sales.

- Pumps  
Bearings, axial bearings, valves, plungers
- Mechanical seals  
Sealrings, inserts
- Semiconductor  
Insulators, precision parts
- Chemical industry  
Sealrings, valves, plungers
- Solar industry  
Precision and wear parts in silicon carbide
- Automotive  
Cold forming
- Food processing  
High pressure mechanical seals, insulators, extrusion tools, homogenizer valves
- Automotive  
Cold forming
- Tooling  
Punches, dies, powder press tools, measurement gauges
- Electronic, sensors  
Protecting ceramic plates, insulators

We solve the specific requirements of our customers through our expertise.

**TRADITION.**

**FUTURE.**

**TRANSCERAM**  
HIGH PRECISION



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